

Bending Stiffness

Bending stiffness is an expression of the rigidity of paper or paperboard. This property is related to the modulus of elasticity of the product and its thickness. There are several instruments in use in the industry that measure stiffness, and they all bend the product to measure stiffness. There are 2-point bending instruments and 4-point bending instruments. Solid fiber board and small fluted combined board (to be used in folding cartons) is typically measured with 2-point bending instruments.

Commonly used instruments include Taber, Gurley, and L&W. In the USA Taber Stiffness is the most common stiffness measurement. In Europe L&W is most common.

When stiffness is reported it is important to know how much bending took place. The typical Taber stiffness test for solid fiber board uses a 15 deg bending. Small flute combined board cannot be bent to 15 deg without damaging the product, so it is necessary to bend to a lesser degree. The Taber stiffness tester can only be set to reach an end-point at 15 deg or at 7.5 deg of bending, and sometimes the product is damaged at 7.5 deg. We test small flute product at 7.5 deg using the Taber instrument, and we discard results when we recognize that the sample was damaged

The L&W instrument can be set to reach an end-point at various degrees of bending, therefore we use 5 deg bending for small flute products. This assures that the sample is not damaged, improving the reliability of the test results. Also, in Europe, 5 deg bending is fairly common, when using the L&W instrument.



